

**WHAT WE CLAIM:**

1. A method for removing silver from a silver stained DNA detection chip having bound gold nanoparticles comprising the steps of:
- (a) providing an etching solution;
  - (b) contacting the chip with the etching solution for a time sufficient to remove the silver stain; and
  - (c) washing the etching solution away from the chip.
2. The method according to claim 1 wherein the etching solution is a cyanide etching solution.
3. The method according to claim 2 wherein the cyanide etching solution comprises:
- 0.01 M to 0.5 M  $\text{Na}_2\text{S}_2\text{O}_3$ ;
  - 0.1 M to 2 M KOH;
  - 0.001 M to 0.1 M  $\text{K}_3\text{Fe}(\text{CN})_6$ ; and
  - 0.0001 M to 0.005 M  $\text{K}_4\text{Fe}(\text{CN})_6$ .
4. The method of claim 2 wherein the cyanide etching solution comprises:
- 0.1 M  $\text{Na}_2\text{S}_2\text{O}_3$ ;
  - 1.0 M KOH;
  - 0.01 M  $\text{K}_3\text{Fe}(\text{CN})_6$ ; and
  - 0.001 M  $\text{K}_4\text{Fe}(\text{CN})_6$ .
5. The method of claim 2 wherein the cyanide etching solution comprises:
- 0.05 M to 0.5 M KCN; and
  - 0.1 M to 2 M KOH.
6. The method of claim 2 wherein the cyanide etching solution comprises:
- 0.1 M KCN; and
  - 1 M KOH.

7. The method of claims 3 or 5 wherein the cyanide etching solution is applied by dipping the chip in the cyanide etching solution.
8. The method of claims 3 or 5 wherein the cyanide etching solution is applied by spraying the chip with the cyanide etching solution.
9. The method of claims 3 or 5 wherein the cyanide etching solution is removed by washing with water.
10. The method of claims 3 or 5 wherein the cyanide etching solution is applied for between about 1 second and about 10 minutes.
11. A method for removing silver from a silver stained DNA detection chip having bound gold particles comprising subjecting the chip to ultrasound waves for a time sufficient to remove the silver stain.
12. The method of claim 11, wherein the chip is subjected to ultrasound waves by submersing the chip in a sonicator.
13. The method of claim 12 wherein the chip is submersed in the sonicator for between about 3 minute and about 5 minutes.